Comments on the Manomet Report: Biomass Sustainability and Carbon Policy Study

Submitted by Antares Group Incorporated
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Antares has been in the business of assisting the development of sustainable renewable energy projects (solar, wind and biomass) in the U.S. for nearly 20 years. Our comments reflect our knowledge and experience with many first of a kind Bioenergy projects and with evaluating the emissions impacts and benefits of these projects. Our expertise spans feedstocks production to fuel/power delivery to the grid/terminal.

It is important to acknowledge from the outset that greenhouse gas accounting methods are built on both science and accounting conventions. The Manomet report and others like it agree on the science of calculating carbon fluxes to and from the carbon sources and sinks. At the project level these are well understood. There may be some disagreement on finer details such as computing carbon sequestration in the soil but by and large engineers and scientists understand for a given feedstock and process application how to calculate carbon flows precisely. The report is correct in saying that energy conversion efficiency matters in terms of controlling carbon release rates no matter what accounting convention is applied to the estimate greenhouse gas impacts. It should continue to be the goal of the U.S. to work to increase the efficiency of biomass power production systems wherever they are used and that RD&D effort needs to resume with new vigor.

We believe there needs to be continuing debate on the conventions applied to GHG accounting schemes. The conventions used to calculate the financial position of an enterprise, for example cash versus accrual accounting, can lead to very different results. Both accounting methods tell you about a company's health but the net profitability calculated can be dramatically different. This is clearly the case in GHG accounting for Bioenergy projects. The conventions include:

- Timing for the period of accounting: fixed period versus lifecycle, event driven (first day of power production) versus baseline year (agreement date – e.g. the Kyoto Protocol baseline year for commitments to GHG reductions)
- Scale for carbon accounting: macro (national, regional or biomass supply shed) versus micro (stand, plot or individual harvest area)
- Allocation or linkage of sources and sinks: independent sources and sinks versus coupled sources and sinks (e.g. energy farms linked to power projects, carbon capture and storage systems linked to energy projects)

It is the choices made by the study with regard to linkages that we believe most need to be further examined and debated. The study makes an unacknowledged default assumption that all sources are equally linked to forest carbon storage systems – geologic carbon releases and cyclic biomass carbon releases are treated the same with respect to forest sinks. If long term growth in GHG gas concentrations was not a concern this would not be and important issue.

In a world where it is desirable to constrain net carbon growth in the atmosphere over the long haul this allocation is questionable. Geologic sources should be linked only to geologic sinks and vice versa. In this view the capacity of forests to absorb carbon should be linked preferentially to the projects that use those resources and do so sustainably (one aspect of which is preserving or improving future growth and

maintenance of the carbon inventory). In a case we examined in the Southern U.S., the project would draw fuels from the surrounding forest and emit carbon to the atmosphere at a rate that is less than four percent of the forest supply sheds carbon uptake rate attributed to **net** new forest growth on an annual basis. In this situation the source is more than balanced by the sink with which it interacts. Carbon neutrality is preserved from the very outset. As the Manomet report suggests the Bioenergy project can contribute to increased net forest growth rates in the future if managed sustainably. Further, biomass power projects that use a portion of residuals from forest resource harvest and management activities generate a GHG reduction dividend by removing materials that would have decomposed generating the powerful GHG agent methane in the process.

The Manomet report does not dispute that in the long term replacing geologic sources of carbon in energy production with cyclic biomass sources of carbon for energy production could lead to reduced atmospheric concentrations of carbon. Linking geologic carbon sources to cyclic biomass carbon sinks in the same manner as biomass energy projects shifts the burden for balancing carbon emissions from fossil fuels to Bioenergy development. It results in an imputed immediate unbalanced carbon debt. The accounting convention that should be applied to renewable Bioenergy resources is that sustainable Bioenergy projects are directly and positively linked to the cyclic biomass carbon cycle – fossil fuels are not.